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ABSTRACT

Invention is a dynamic, recursive process influenced by the rhetorical situation of audience and purpose, the writer's long-term memory, and the text which has already been produced at any given moment. Most heuristics are concerned with the generation of ideas, that is, content oriented. However, the relationship of form-oriented planning to the generation of ideas needs to be explored. The general form that a writer selects for a piece of writing exerts a powerful force not only on shaping what has been generated, but also on causing further generation. Our understanding of rhetorical invention has been enhanced by neurological research which has investigated cognitive mapping, neural excitation, and synapse jumps. Future studies of rhetorical invention will make use of protocol studies and videotaping techniques, furthering our knowledge of what good writers actually do, and seem to be headed toward an increased use of cross-breeding to generate questions for heuristic systems. In addition, there will be an increased interest in understanding the cognitive basis behind the practical heuristics, and in using heuristics in the classroom. (HOD)

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NEW DIRECTIONS IN RHETORICAL INVENTION

Conference on College Composition and Communication--March,1983

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When I ask my students where they get ideas for writing they say they "think" and when I ask them what they do if they don't get an idea they say they think "harder." What do you do when you think harder? I look up at the ceiling and set my jaw; sometimes I even squint. But all that muscle strain doesn't guarantee an idea will come. How do you squeeze out an idea? The problem of invention is to find an answer to that question.

I'd like to look at invention on a practical level, to provide a look at where invention in the classroom has been and will be headed, and I'd like to look at invention on the theoretical level, to see where research might be headed.

Invention, identified by Flower and Hayes (1981) as the planning process, includes generating ideas, organizing ideas and goal-setting. But as Flower and Hayes are so emphatic in pointing out, viewed as the planning process, invention is neither an isolated stage in writing nor limited to processes which are somehow previous to text production. Invention, then, is a dynamic, recursive process influenced by the rhetorical situation of audience and purpose, by the writer's

own long-term memory, and by the text which has already been produced at any given moment.

Although Richard Young (1976) identifies four major schools of invention, three of the four schools share the same device for generating ideas: the question. The first and oldest school, the Aristotelian places of invention were given new life by Richard Larson's (1966) use of the topoi as questions. Two of the other schools of invention cited by Young, the Pentad and tagmemics, both rely on the use of questions. Could it be that it is not so important which specific heuristic which we choose to use in the classroom, as it is that we recognize the power of questioning as a way to gain access to stored memory or spark intuition. The Pentad is a case in point.

Kenneth Burke (1945) offered the Pentad--essentially the five w's of journalism--as a device for literary criticism but William Irmscher used the Pentad in his Holt Guide to English (1976) as a set of questions to generate writing content. Although Burke himself wasn't too pleased with the use Irmscher made of his dramatistic method of analyzing motivation (1978), Irmscher's Pentad works, not because of its ties to drama and motivation, but because it is a finite set of questions requiring little training and

using no specialized vocabulary.

This advantage of the Pentad's questions is the feature lacking in the third school of invention, tagmemic heuristics. Because Young, Becker & Pike's (1970) set of questions combine tagmemic linguistics with quantum physics, some feel that this combination is a major drawback (Kneupper, 1980), requiring lengthy study of theory and vocabulary in two highly specialized fields, linguistics and physics. Once we realize that it is the activity of questioning which generates content for writing, we won't be so concerned with discovering the perfect set of questions or with mastering an infinity of new combinations and variations. With this reassurance we can look with new concern at the organizing process of planning as another type of invention.

Most heuristics are concerned with the generation of ideas--they are content-oriented. However what needs to be explored is the relationship that shaping, form-oriented planning, has to the generation of ideas. I have in mind a study of what Bonnie Meyer (1982) calls the top-level structures. The general form that a writer envisions for a piece of writing, at any given moment, exerts a powerful force not only shaping what has been generated but also causing

further generation. Ironically, for weaker writers dogmatic notions of form have a negative influence, a strongly inhibiting force. In addition to attention being paid to the shaping of top-level structures I also believe more work will be done with Christensen's generative rhetoric and with schema theory as they relate to the organizing aspect of invention.

For the writer who knows or who has learned Christensen's (1963) levels of generalization, the form itself, adding of levels of modification, can be a generating device. A writer's thoughts will expand in the very act of writing, using a form-centered heuristic. If, as Flower and Hayes (1980a) have said, writers only solve the problems they represent to themselves, it also seems that writers organize their knowledge according to the schemas they have already built up. Schemas, as we know from cognitive psychology (Bobrow & Norman, 1975, Anderson, 1977), are complex, learned patterns for the organization of knowledge. Recognizing this, we see that ideas generated during the invention process will be organized according to a writer's schematic repetoire. For example, a writer generating ideas for a business letter, who only has one schema for the business letter, the one learned in fifth grade, is going to

produce a very predictable range of ideas. Another writer, a business executive who writes various types of business letters, will have a greater number of "business letter" schemas to draw from and consequently should generate a greater range of ideas. In the classroom, a student whose schematic repetoire for writing is limited to the five paragraph essay, what Emig (1971) calls the Fifty Star Theme, will only generate ideas to fill that form.

The second area I'd like to look at concerns the theory behind the practical heuristics. One field of investigation for rhetorical invention is neurological research. As Janet Emig points out in "Hand, Eye, and Brain" (1978), there are important physiological questions which need to be answered before we fully understand the invention process. Future studies in invention will be more and more concerned with the electro-chemical activity which takes place in the brain (Gerard, 1957) and the neurophysiology of the act of vision (Roberts, 1982). The greater our understanding of cognitive mapping, neural excitation, and synapse jumps the better the chance that we will understand a writer's intuition. There will also be greater study of the relationship between hemisphericity and invention,

focusing especially on the role of the right brain. Some of the right brain work done so far appears too irrational, advocating that we seriously teach heuristics which include mumbling, staring and doodling, (Fulwiler & Petersen, 1982) while other studies appear too all-encompassing for credibility, notably Jaynes' (1976) theory that the bridging of the God-voice in the right brain with the man's left brain resulted in human consciousness. We already have some field-tested work in this area from the fourth of Young's schools of invention, the Pre-Writing School. Usually identified with Gordon Rohman (1964), this approach is quite different from the other three in that it uses non-directive heuristic devices to prepare the writer: journal-keeping, meditation and analogy. Relying on intuitive strategies, the pre-writing school uses invention as a time for what Peter Elbow (1973) calls the cooking and growing.

So even though we might agree about the importance of invention, there is much we still don't know about how it works and how it can be taught. The more we study classroom and learning environments, the more we encounter magical thinking (Emig, 1981), the belief that because we teach and our students learn, their learning was

caused by our teaching. Emig suggests that the best thing we could do is stop our magical teaching and concentrate on providing enabling environments to allow the learning to happen. Another researcher, Pat Hartwell (1981), has found that it is the weaker writers who learn what they are taught and the better writers who are able to go beyond what they are taught. We are finally starting to understand that to learn "X" it may be necessary to teach "Y" and "Z." For example, Hartwell found that althought he thought he was teaching coherence, his students were learning reading strategies. To discover what tacit steps are necessary for our students to learn what we can't necessarily teach, we will probably do more comparison between the behavior of the good writer and the behavior of the poorer writer to identify what it is that good writers tacitly know. Rhetorical invention will begin to make further use of protocol studies (Flower & Hayes, 1980b) and videotaping techniques (Matsuhashi & Cooper, 1978), enabling us to base our invention theory on what good writers actually do rather than on what they say or think they do. One way to actually monitor a writer's use of invention heuristics is to have them engage in a computer-assisted heuristic (Burns & Culp, 1980; Wresch, 1982). The computer will

provide a record of the ideas generated, the false starts, and changes in direction, regardless of whether these ideas are actually used in any subsequent draft. The records will not only help the writer but will also be invaluable to the invention researcher. We will be able to see rhetorical problem-solving in action.

In conclusion, invention studies in the coming years seem to be headed toward an increased use of cross-breeding to generate questions for heursitic systems: as physics and linguisitics were used for tagmemics, anthropology for cultural heuristics (DeGeorge, 1979), and literary criticism and journalism for the Pentad, we might see a cross-breeding with chemistry to yield a co-valent bond heuristic, or film to yield a camera frame/focus heuristic as suggested by Lee Odell (1976), or yoga to yield a series of asanas heuristic as suggested by James Moffett (1982), or with astrology to yield a tarot-based heuristic. The combinations are infinite. In addition to idea-generating heuristics invention will be involved with the other processes of planning: organizing and goal-setting. I also see an increased interest in understanding the cognitive basis behind the practical heuristics: studying neural activity, the cognitive basis of analogy,

the use of recall experiments for cognitive mapping. Invention will also be concerned with the use of heuristics in the classroom: what heuristics work with what type of student, when in the process heuristics should be used, and how these devices can best be learned.

NEW DIRECTIONS IN RHETORICAL INVENTION

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